

**TM 10-510**

**WAR DEPARTMENT**

**TECHNICAL MANUAL**

**THE MOTOR VEHICLE**



**THE MOTOR VEHICLE**

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SECTION I

AUTOMOTIVE NOMENCLATURE

	Paragraph
General.....	1
Classification by divisions and groups.....	2

1. **General.**—The following listed nomenclature for automobile parts and assemblies includes definitions pertinent to them or to engineering or commercial automotive practices as standardized by the Society of Automotive Engineers:

*a.* Where the terms "front" and "rear" are used, "front" should always be toward the front end of the car. Sometimes these terms are confused with regard to parts which are mounted on the dash. The front side of the dash is always the side next to the engine.

*b.* Where parts are numbered, No. 1 should be toward the front of the car. For instance, No. 1 cylinder is the one nearest the radiator (in conventional construction).

*c.* "Right" and "left" are to the right and left sides of a vehicle when looking forward from the driver's seat.

*d.* Studs, screws, and bolts take names from the parts they serve to hold in place, although they are assembled with other parts. For example, the cylinder stud is permanently screwed into the crankcase but holds the cylinder in place.

*e.* The term "engine" should be used rather than "motor" to avoid confusion with electric motors.

**2. Classification by divisions and groups.**—For ease in classifying parts and assemblies, they are separated into primary divisions, then further subdivided into groups. The detailed itemization of each and every part under the group headings is then shown.

*a. Division I.—cylinders.*

(1) *Group 1—cylinders.*

Cylinder

L-head (valves on one side of cylinder).

T-head (valves on opposite side of cylinder).

I-head (valves in cylinder head).

F-head (one valve in head, other on side directly operated).

(Cast in block, not "cast en bloc.")

(Cylinders of V-type engines should be numbered 1R, 1L, 2R, etc.)

Inlet valve cap.

Exhaust valve cap.

Valve cap gasket.

Cylinder head.

Cylinder head:

Gasket.

Plug.

Water jacket:

Top cover.

Top cover gasket.

Side (or front or rear) cover.

Valve spring:

    Cover.

    Cover gasket.

    Cover stud.

Valve stem guide.

Priming cup.

(2) *Group 2—crankcase.*

Crankcase.

Barrel type crankcase.

Split type crankcase (split horizontally at or near center line of crankshaft).

Crankcase upper half.

Crankcase lower half (used only when lower half contains bearings. A crankcase of either barrel or split type in which all bearings are mounted directly on part to which cylinders are attached is called a "crankcase", with terms "upper half" and "lower half" not being used.)

Oil pan (used for lower part of split type or barrel type crankcase, whether this serves as an oil-reservoir or not).

Oil pan drain cock (or plug).

Breather.

Oil pan gasket

Crankshaft:

    Front bearing (upper half and lower half).

    Front bearing cap.

    Bearing cap stud (screw or bolt).

    Front bushing support (sometimes used in barrel type crankcase).

    Rear bearing.

    Rear bearing shims (other shims accordingly).

    Center bearing (if only three bearings or if all except end bearings are alike).

    Second bearing, etc. (if more than three bearings, for example, front bearing, second bearing, third bearing, fourth bearing, rear bearing).

Hand hole cover.

Hand hole cover gasket.

Timing gear cover.

Timing gear cover gasket.

Flywheel housing.

Generator bracket (other brackets take name of part supported).

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(3) *Group 3—crankshaft.*

Crankshaft.

Flywheel.

Crankshaft timing gear (or sprocket).

Crankshaft timing gear key.

Flywheel starter gear.

Crankshaft starter sprocket.

Flywheel bolts.

Clutch spring stud.

Crankshaft starting jaw (or pin).

Crankshaft damper.

(4) *Group 4—starting crank.*

Starting crank.

Starting crank:

Jaw.

Shaft.

Shaft spring.

Handle.

Handle pin.

(5) *Group 5—connecting rods.*

Connecting rod.

· Straight connecting rod	} V-type engine.
Forked connecting rod	

Connecting rod:

Cap.

Bushing (upper half and lower half).

Cap stud (or bolt).

Cap nut.

Bearing shims.

Dipper.

Piston pin bushing.

(6) *Group 6—pistons.*

Piston:

Pin.

Pin lock screw (in connecting rod or piston).

Ring.

Ring groove.

*b. Division II—valves.*(1) *Group 1—camshaft.*

Camshaft.

Eccentric shaft.

Camshaft:

Timing gear.  
 Timing gear key.  
 Idler gear.  
 Oil pump gear.  
 Ignition distributor gear  
 Timer drive gear.

Exhaust cam.

Inlet cam.

Oil pump eccentric (or cam).

(2) *Group 2—valves.*—Valves should be numbered 1 Ex, 1 In, 2 Ex, 2 In, etc., according to the number of the cylinder. On V-type engines the numbers should be 1REx, 1LEx, etc.

Poppet valve.

Inlet valve.

Exhaust valve.

Valve spring.

Valve spring:

Retainer.

Retainer lock.

Valve lifter.

Valve lifter:

Guide.

Guide clamp.

Roller.

Roller pin.

Valve:

Adjusting screw.

Adjusting screw nut.

Rocker (either at cam or at overhead valve; if both, upper and lower).

Push rod (intermediate between lifter and valve in I-head engine).

*c. Division III—cooling system.*

(1) *Group 1—fan.*

Fan.

Fan:

Bracket.

Spindle.

Hub.

Hub bushing (or bearing).

Blades.

Pulley.

Belt.

Driving pulley.



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(2) *Group 2—radiator.—(a) Radiator cores.*

1. *Individual fin and tube core.*—An assembly of fluid tubes of any cross-sectional form to each of which are attached gills or fins of circular, square, or other shape, each tube and its fin or fins forming a separate unit.
2. *Continuous fin and tube core.*—An assembly of fluid tubes of any cross-sectional form, the tubes being joined together by radiating fins or plates common to all tubes or groups of the tubes.
3. *Ribbon cellular core.*—A number of fluid passages made by joining metal ribbons at the edges and grouped to form a cellular structure. Parts of the cellular structure may be of formed or flat ribbon which is not a part of the fluid passage.
4. *Air tube cellular core.*—An assembly of air tubes nested in such a way as to form fluid passages between the tubes, the passages being sealed at the ends of the tubes. In this type the fluid may flow transversely as well as vertically around the tubes.

(b) *Shell-type radiators.*1. *Radiator core and tank assembly.*

Radiator:

Core.

Core header sheets.

Upper tank.

Filler neck.

Filler neck sleeve.

Filler cap.

Filler cap gasket.

Tie rod fitting.

Baffle.

Inlet fitting.

Lower tank.

Outlet fitting

Drain flange.

Drain cock.

Anchor stud or bolt.

Anchor stud or bolt plate.

Overflow tube.

Side bolting member.

Shell anchorage clips.

2. *Radiator shell.*

## Radiator:

Supports.

Anchor studs or bolts.

Support reenforcement.

Hinge rod fitting.

Brace rod fitting.

Hood ledge liner strip.

Starting crank hole cover.

(c) *Cast-type radiators.*1. *Radiator assembly.*

## Radiator:

Clamping strips.

Clamping bolts or studs.

Overflow tube.

Sides.

Header gasket.

Hood ledge liner strip.

2. *Radiator core assembly.*

## Radiator core.

## Radiator core:

Upper header.

Lower header.

Overflow jacket tube.

3. *Radiator upper tank.*

## Radiator:

Filler cap.

Filler cap gasket.

Filler cap hinge pin.

Filler cap fastener.

Tie rod fitting.

Hinge rod fitting.

Inlet fitting.

Inlet gasket.

Inlet studs or cap screws.

4. *Radiator lower tank.*

## Radiator:

Anchor studs or bolts.

Outlet fitting.

Outlet gasket.

Outlet studs or cap screws.

Drain cock or plug.